Space Weather Forecast

Issued on Monday 27 January 2025 at 13:01 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been at Moderate levels, with one isolated moderate-class flare in the last 24 hours.

There are currently seven sunspot regions visible on the Earth-facing disc. The largest and nominally most complex region has rotated off the southwestern limb, the largest region now is approaching the northwest limb. Other regions are relatively small at the present time.

No Earth-directed Coronal Mass Ejections (CMEs) have been seen in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was at background levels, around 300 km/s. The Interplanetary Magnetic Field was weak, with the north-south component varying weakly. Geomagnetic activity was Quiet (Kp0-1).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity is expected with a chance of further isolated Moderate flares, and a slight chance of Strong flares.

Solar Wind / Geomagnetic Activity: No new CMEs feature in the forecast. A previously forecast CME from 22 Jan may have arrived this morning but any impacts have been weak. A further CME associated with a filament eruption around midnight on the 26th may give a weak glancing blow late on day 2 (28 Jan) or early on day 3 (29 Jan), again this is low confidence with most of the CME expected to miss Earth. A small coronal hole developed in the northwest quadrant of the disc, however any influence from this feature is likely to be limited if at all.

Quiet to Unsettled activity (Kp0-3) is generally expected through the forecast period, with a very slight chance of Active to G1/Minor Storm (Kp4-5) intervals late Day 2 (28 Jan) or early day 3 (29 Jan) should any glancing CMEs arrive.

Energetic Particles / Solar Radiation: There is a slight chance of enhancements exceeding the S1/Minor Radiation Storm threshold, should any larger flares occur from the western hemisphere.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	10	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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